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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/334,049	06/15/1999	ARIEL BEN-PORATH	3656/PDC	4880

32588 7590 12/05/2003

APPLIED MATERIALS, INC.
2881 SCOTT BLVD. M/S 2061
SANTA CLARA, CA 95050

EXAMINER

BALI, VIKKRAM

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 12/05/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/334,049

Applicant(s)

BEN-PORATH, ARIEL

Examiner

Vikram Bali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-5 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno (US 6047083).

With respect to claim 1, Mizuno discloses:

Imaging the surface to form a defect image, (see col. 4, lines 6-8, wherein the image of the wafer is formed using the SEM);

Classifying the defect as being in one of a predetermined number of core classes of defects using a rule-based core classifier, (see col. 3, lines 39-41); and

Classifying the defect as being in one of an arbitrary number of variant subclasses using a specific adaptive classifier associated with the one core class, (see col. 3, lines 42-44). However, he fails to specifically disclose: the specific adaptive classifier being a classic classifier trained by the user with a set of sample defect images and associated with less than the predetermined number of core classes; as claimed. But, as stated in the col. 5, lines 15-20, the sub classification is done using a pattern design rule which is

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recorded in to the apparatus prior to the inspection i.e. in the training phase and that is done by the use interface, therefore, by this it is obvious that the apparatus does include a classic classifier that is trained by the user; and the classifier is associated with less than the predetermined number of core classes.

Therefore, it would have been obvious to ordinary skilled in the art at the time of invention to modify the Mizuno's system as by introducing the classic classifier as stated in the col. 5 of Mizuno's system in order to classify the defects in to the classes and sub-classes using the rule based classifiers and the classic classifier respectively to ease the semiconductor manufacturing process.

With respect to claims 3-5 the rejections are maintained and incorporated by references as set forth in prior office action (paper # 3).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno (US 6047083) in view of Automatic defect classification for semiconductor manufacturing, by Paul et al, Machine Vision and Application, 1997, pp 201-213.

With respect to claim 2 the rejections are maintained and incorporated by references as set forth in prior office action (paper # 3).

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno (US 6047083) in view of Applicants prior admitted art.

With respect to claim 6 the rejections are maintained and incorporated by references as set forth in prior office action (paper # 3).

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5. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno (US 6047083) in view of Nakamura et al (US 5172421).

With respect to claims 7-9 the rejections are maintained and incorporated by references as set forth in prior office action (paper # 3).

Claims 10-18 and 22-30 are rejected as claims 1-9 as claims 10-18 and 22-30 are claiming similar subject matter as claimed in claims 1-9.

Claims 19, 20 and 21 are rejected as claims 1, 8 and 9 as claims 19, 20 and 21 are claiming similar subject matter as claimed in claims 1, 8 and 9.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is 703.305.4510. The examiner can normally be reached on 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703.308.6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9306 for regular communications and 703.872.9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.306.0377.


Vikkram Bali
Examiner
Art Unit 2623

vb
December 3, 2003